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in which he says: "Amœbic changes in form have been noted recently in liver tissue [sic] examined *immediately after chloroforming affected turkeys*" (italics as in original). It is to be presumed that reference was meant to the parasites within the tissues. Dr. Smith is of the opinion that the varied etiological conditions encountered in the different species of birds, and in turkeys at different ages, leads to a conclusion that two distinct diseases were encountered and confused. It does not, however, seem to the writers that a different expression of the effects of a disease among various species, or in the same species at different ages, is anything remarkable. Furthermore, it was specifically stated that other complications were a common accompaniment of the coccidial infection, and one other organism was mentioned which, it was suggested, had the power to produce pathological conditions characteristic of blackhead.

Regarding the relation of the coccidium observed in blackhead to *Coccidium cuniculi*, the great variability in the shape and size of the cysts led to the tentative conclusion that the two were not to be separated on purely morphological grounds. On page 203 of Bulletin 141 appears the following:

It may be here stated that the present writers (Cole and Hadley, 1908) have, in the past, used the name *Coccidium cuniculi*, merely to signify the *morphological* [italics not in original] resemblance to this organism. . . .

As to the biological tests, some inconclusive experiments are reported on p. 183, and on p. 203 it is said:

Experiments involving such tests are now under way at the Rhode Island Experiment Station, and until their results are clear, the authors do not feel justified in attempting to place the organism of blackhead [*i. e.*, the *Coccidium*] in its proper systematic position.

Furthermore, the position taken in Bulletin 141 regarding roup as a coccidial disease is merely suggestive—on account of the similarity to the schizont stage of a coccidium of certain histological elements found in roup lesions—and in no sense positive. For example, it is stated on p. 205 that it "seems possible"

that what Harrison and Streit figure as "swollen nuclei" may represent stages in the development of a coccidium; and again, on p. 206, it "seems possible" that the "refractive bodies" described by Cary may also be schizont stages of coccidia.

In closing, Dr. Smith (*op. cit.*) remarks:

I also wish to protest against the publication of premature, undigested, controversial statements in the form of preliminary notices years before the appearance in print of the actual work on which such statements are presumably based.

It is certainly much to be regretted that the appearance of the full bulletin was long delayed awaiting the production of plates. It should be stated, however, that the "preliminary communication" referred to by Dr. Smith was not a special article on the subject. It was merely the *abstract* of a paper read at the scientific meetings at New Haven and Chicago; and, as such, partook of the abbreviated form characteristic of most other similar abstracts printed in SCIENCE. Needless to state, much "proof" could not be supplied in an article necessarily of so short a nature.

LEON J. COLE
PHILIP B. HADLEY

QUOTATIONS

WOMEN AND SCIENTIFIC RESEARCH

It is a long time since so interesting a phase of the question of woman's place in the world of intellect has come up as that presented by the proposition that Mme. Curie be elected a member of the Académie des Sciences. Of course, nothing really analogous to this case has yet arisen in the course of the advancement of women that has been so remarkable a part of the history of the past generation; there is something more dramatic about the situation presented when the most distinguished group of scientific men in the world debates the admission of a woman into its charmed circle than in the gradual extension of the field involved in the opening of the doors of university after university in country after country, to women students. As for the merits of the case, and its probable outcome,

we can not help feeling that it is at most only a question of time when Mme. Curie's admission will be effected; assuming, as no doubt it may be assumed, that the opposition turns only on the question of sex. It is hardly to be supposed that this will be allowed, in our time, to prevent for very long the recognition of achievements of such unusual character, and of such extraordinary importance in the history of science, as those which she has accomplished. Incidentally, it may be remarked that to the logical mind there will be little to choose between her admission and her non-admission, as an argument against the views of those who still maintain that experience has shown women's incapacity for the highest forms of scientific production. If she is admitted, there will be one woman, out of the handful that devote their lives to scientific research, distinguished by one of the highest of scientific honors; if she is kept out, it will be one more proof of the immeasurable difference between the degree of encouragement and incentive held out to women and that held out to men for sustained devotion to strenuous intellectual labors.—*The N. Y. Evening Post.*

SCIENTIFIC BOOKS

An Introduction to the Theory of Optics. By ARTHUR SCHUSTER, F.R.S., Honorary Professor of Physics at the University of Manchester. Second edition, revised. London, Edward Arnold. 1910.

The first English text-book on physical optics which had any considerable utility for college classes is probably that of Glazebrook, published in the early eighties. Of the many other texts and treatises on this subject which have appeared since there is probably none which shows better balance or more accurate scholarship than the one of which the second edition is now under review.

We pass at once to some of the noteworthy features of this treatment, and especially to the changes introduced into the second edition, merely pausing to commend the author's clarity and precision of style.

1. A nomenclature which has once been established and which carries with it a perfectly

definite meaning is difficult to replace. But every one must admit the cogency of Professor Schuster's reasons for suggesting that we replace the term "simple harmonic motion" by "simple" or "normal" oscillation, since "*harmony*" means a relation between different things and not a property of any particular thing."

The term "quasi-homogeneous," which does not appear in the former edition, is here introduced to denote actual monochromatic radiations met with in the laboratory as contrasted with the hypothetical (homogeneous) radiations described by the following equation, in which x is unlimited as to value:

$$y = a \cos 2\pi(t/T + x/\lambda).$$

As an illustration of the helpfulness of this concept one may refer to the last paragraph of art. 26, which is much clearer than the corresponding paragraph in the older edition; or one may cite the following sentence from the chapter on gratings:

It is owing to the rapid falling off of light from both sides of the principal maxima, that the grating can be made use of to separate the different components of white light, and to produce quasi-homogeneous vibrations.

Another helpful term suggested (p. 60) in the new, but not in the old, edition is the word "coherent" to denote "vibrations which are related in phase owing to their having originated at the same ultimate source."

The following quantitative definition of spectral purity appears in a new form; but it is hardly self-contained or definite without additional explanation. Spectral purity is defined "as $\lambda/\delta\lambda$ where $\delta\lambda$ is the difference between two wave-lengths which just do not encroach upon one another."

2. In Chapter III. will be found a most instructive page of new material giving a comparison of the two methods of resolving white light, namely, into pulses and into homogeneous waves. The essence of the matter is contained in the following paragraph:

The consideration of white light as a succession of impulses is very instructive and often simplifies calculations considerably, as we need only deal with a single impulse; while if we start from the